

Bull. Natn. Sci. Mus., Ser. A (Zool.), 3 (2), June 22, 1977

Crabs from Shallow Waters off Mage-jima Island, Southwest Japan

By

Masatsune TAKEDA

Department of Zoology, National Science Museum, Tokyo

Mage-jima is a small island situated to the south of Kagoshima and to the west of Tanega-shima Island. Mr. Y. USHIO and several other members of the Kagoshima University student club for marine ecological study carried out dredging in the shallow waters around this solitary island several times from 1967 to 1970. The crabs then collected were long preserved in the Marine Zoological Laboratory, Kagoshima University. In 1975, when the present author joined the expedition to Tanega-shima Island as a part of the Natural History Research Project of the Japanese Islands by the National Science Museum, Tokyo, these crabs were put at the author's disposal for a comparative study through the courtesy of Dr. T. SAISHO.

Notes on the geographic and faunistic peculiarities based on these collections and the decapod crustaceans collected by the author himself at Tanega-shima Island were recently reported by the author (1976), and the specimens under the care of Dr. SAISHO are exactly recorded in the present paper. Twenty-eight species are recorded. Two of them are described as new to science, and the identification of one species of the Xanthidae is unsettled due to the immaturity of the specimens. The account of each species includes material examined, remarks and description where necessary and summaries of geographic and bathymetric distributions. All the specimens recorded in this paper are now preserved in the National Science Museum, Tokyo (NSMT).

The author's cordial thanks are tendered to Dr. T. SAISHO of Kagoshima University and Mr. H. MINEI of Kyushu University, who provided him with the material and literature, respectively.

Family Dromiidae

Petalomera angulata SAKAI, 1936

One male (NSMT-Cr. 5445), 3-X-1968, 40 m deep.

Endemic to Japan. From rocky shore at low tidal mark to the present record of 40 m.

Lasiodromia unidentata IHLE, 1913, stat. nov.

One male (NSMT-Cr. 5431), 30-VI-1967, 35-40 m deep; one female (NSMT-Cr. 5432), 3-X-1968, 40 m deep.

This species hitherto known as a subspecies of *L. coppingeri* (MIERS) was first reported in Japanese waters by ODAWARA (1963) and subsequently by SUZUKI and KURATA (1967) and SAKAI (1976). The presence of a spine at the middle of the anterolateral border of carapace and of a spinule at the junction of the anterolateral and posterolateral borders makes it worthy of a specific distinction.

Known only from Timor Island and Japan. From 15 to the present record of 40 m.

Family Latreilliidae

Latreillia phalangium DE HAAN, 1839

Three males and two ovigerous females (NSMT-Cr. 5433), 14-IV-1970, 40 m deep. Endemic to Japan. From 30 to 307 m.

Family Leucosiidae

Pseudophilyra dinops TAKEDA, sp. nov.

(Figs. 1, 4, 5)

One ovigerous female (holotype, NSMT-Cr. 5434), 3-X-1968, 40 m deep. Breadth of carapace, 10.2 mm and length of carapace including frontal median tooth, 11.7 mm.

The genus *Pseudophilyra* MIERS takes an intermediate position between *Philyra* LEACH and *Leucosia* WEBER, being distinguished from *Philyra* by having no hepatic facet and from *Leucosia* by the absence of thoracic sinus. In most species the general aspect of the carapace is rather similar to that of *Leucosia* due to the presence of a thick snout, but some species have more the facies of *Philyra* than of *Leucosia*. This genus is exclusively Indo-West Pacific and the following is a list of the species enumerated chronologically. *Ps. perryi* (MIERS, 1877) — Shark Bay, W. Australia and Schouten Eilanden Is.; *Ps. tridentata* MIERS, 1879 — From Japan to Western Australia, and to Red Sea, 10–30 m deep; *Ps. polita* MIERS, 1884 — Poivre I., 25–35 m deep; *Ps. melita* DE MAN, 1888 — From Gulf of Siam through Mergui Arch., Gulf of Martaban and India to Cargados Carajos I., coral reef to 55 m deep; *Ps. pusilla* HENDERSON, 1893 — Gulf of Martaban, Andaman Is. and Maldive Is., 5–77 m deep; *Ps. woodmasoni* ALCOCK, 1896 — Sulu Sea, Andaman Is. and off Cape Comorin, India, 14–70 m deep; *Ps. blanfordi* ALCOCK, 1896 — Mekrán coast, India, 45 m deep; *Ps. intermedia* IHLE, 1918 — Banda Sea, 9–36 m deep; *Ps. tenuipes* IHLE, 1918 — Kei I., 22 m deep; *Ps. deficiens* IHLE, 1918 — Banda Sea, 9–36 m deep.

HENDERSON (1893) considered that *Leucosia orbicularis* BELL ought to be placed in *Philyra*, since it has the epistome much more prominent than the front. Though IHLE (1918) included it in the list of *Pseudophilyra*, this Australian species is probably transferred to *Philyra*. DE MAN (1888) suspected the identity of *Ps. hoedtii* DE MAN with *L. pubescens* MIERS, the latter of which was thought by HENDERSON (*op. cit.*) to have been correctly placed in *Leucosia*. Subsequently IHLE (*op. cit.*) conclusively synonymized *Ps. hoedtii* with *L. pubescens*. ALCOCK (1896) excluded *Ph. adamsi* BELL

from the key to the Indian species and mentioned that it appears rather to be a *Pseudophilyra*. This species was well figured by LAURIE (1906) and its systematic position allied to *Ph. platychira* DE HAAN and *Ph. granigera* NOBILI was confirmed.



Fig. 1. *Pseudophilyra dinops* sp. nov., ovigerous female (holotype).

The new species is remarkably different from all the species enumerated above in the characteristic markings on the carapace mentioned below. The new species falls into the group I defined by ALCOCK (1896), in which the front is tridentate and its free edge projects well beyond the epistome. In the coarsely punctulate carapace and the median longitudinal ridge between the hepatic regions the new species is most closely allied to the type-species, *Ps. tridentata*, but differs from it by the different contour of the carapace, viz., the narrower front strongly constricted posteriorly and the rounded branchial regions generally convex along the whole length without rapid posterior convergence. The following is the description taken from the holotype female.

Carapace elongate pyriform, its upper surface behind hepatic regions remarkably convex dorsally so as to be spherical, being roughly speckled; these punctules are distinctly observed by unaided eye; margin of carapace behind hepatic region with a linear ridge which is beaded with minute granules seen only under high magnification;

antero-inner surface of hepatic region markedly depressed toward post-frontal region, so that hepatic region is distinct and more or less ridge-like; a median distinct ridge between hepatic regions extending from post-frontal part just to posterior ends of two spots; true hepatic border of carapace considerably convex and separated from branchial border by a wide, shallow but distinct depression and similarly from frontal lateral border.

Front tridentate, comparatively narrow and directed dorsally in natural situation of carapace; median tooth much larger than the laterals, being curved dorsally at its tip; external orbital angle salient, but smaller than frontal lateral teeth; infraorbital floor also tridentate. Merus of third maxilliped slightly longer than ischium measured along their inner borders, tapering distally and sharply pointed at its tip; exopod fairly wide.

Chelipeds about 1.5 times as long as carapace. Merus with flat granules of good size on its proximal two-thirds of upper surface, but the lower surface is devoid of them for its most part. Carpus and palm smooth and polished, but sparsely speckled on close examination. Fingers bear no distinct teeth and meet along their distal halves, leaving an elliptical gape; tips of fingers crossing each other.

All ambulatory legs detached, being comparatively stout. Anterior border of merus is so subtruncated that its cross section is nearly triangular. Upper surface of carpus obliquely truncated at its anterior half. Anterior border of propodus crested. Dactylus thin-edged, with a longitudinal bony ridge bordered with punctules on its upper surface. Female abdomen with four pieces.

The specific name is derived from the terrible appearance of two large spots on the punctulate surface like the large eyes.

Family Calappidae

Calappa gallus (HERBST, 1803)

One male and one female (NSMT-Cr. 5420), 26~28-X-1969, 20-40 m deep.

Known from the Indo-West Pacific from Japan through the continental coast to the Red Sea, the Atlantic coast of America from Bermuda Island to Brazil, and the tropical Atlantic coast of Africa. From coral reef at low tidal mark to 215 m.

Family Majidae

Menaethius monoceros (LATREILLE, 1825)

One male (NSMT-Cr. 5439), 30-VI-1967, 35-40 m deep.

Throughout the Indo-West Pacific. From rocky shore to the present record of 40 m.

Hyastenus borradailei (RATHBUN, 1907)

Two males and two females (NSMT-Cr. 5429), 26~28-X-1969, 20-40 m deep.

This species with the long rostral horns is most remarkably different from *H. kyushuensis* (YOKOYA) in having five tubercles in a transverse line on the gastric regions.

Known from Sagami Bay and the coast of Wakayama (SAKAI, 1938) and Tosa Bay (SAKAI, 1976) in Japan, Shanghai (RATHBUN, 1924), Rotuma (BORRADAILE, 1900) and Funafuti (RATHBUN, 1907) in the Ellice Islands, Cape Jaubert in Western Australia (RATHBUN, 1924), and Cargados Carajos Island and the Amirante Islands in the western Indian Ocean (RATHBUN, 1911). From coral reef to 50 m.

***Hyastenus cornigerus* SAKAI, 1938**

One ovigerous female and two females (NSMT-Cr. 5430), 26~28-X-1969, 20-40 m deep.

These specimens agree with the figure of the female holotype given by the original author and reproduced by the same author in 1976, with the exception of the shorter rostral horns. In the males recorded by TAKEDA and KURATA (1976) the carapace and chelipeds are much larger and the hepatic and branchial tubercles are strongly developed.

Endemic to Japan. From 10 to 200 m.

***Chlorinoides longispinus* (DE HAAN, 1839)**

Three ovigerous females (NSMT-Cr. 5423), 3-X-1968, 40 m deep; one female (NSMT-Cr. 5422), 26~29-X-1969, 20-40 m deep.

One of the specimens at hand is not typical in having the short dorsal spines of the carapace.

From Japan through eastern Asia and the northeast of Australia to Mozambique. From 10 to the present record of 40 m.

***Entomonys spinosus* MIERS, 1884**

One female (NSMT-Cr. 5427), 3-X-1968, 40 m deep.

From Japan through the northwest of Australia and the Andaman Sea to the Providence Islands. From 30 to 145 m.

***Micippa philyra* (HERBST, 1803)**

One female (NSMT-Cr. 5440), 14-IV-1970, 40 m deep.

Throughout the Indo-West Pacific. From lower littoral zone to the present record of 40 m.

Family Parthenopidae

***Pseudolambrus longispinosus* FLIPSE, 1930, stat. nov.**

(Figs. 2, 11, 12)

One male (NSMT-Cr. 5450), 26~28-X-1969, 20-40 m deep. Breadth of carapace,

15.0 mm and length of carapace in median line, 12.9 mm.

This specimen was mentioned by TAKEDA (1976) as *Ps. hepatoconus* FLIPSE, but on closer examination it may be referable to this species which was described as a variety of *Ps. hepatoconus*. The gastric and cardiac tubercles are peculiarly high, nearly erect and cylindrical, justifying the specific distinction. In the specimen at hand the general contour of the carapace is similar to that shown in the original figure of *Ps. hepatoconus* rather than to that of this species due to having a short neck. The branchial tubercles are, however, erect and do not disguise the branchial margin in dorsal view. The branchial margin is armed with six conical teeth. All the ambulatory legs are detached in the specimen at hand. The anterior border of the merus is armed with several tubercles, and the posterior border with some. In the anterior two pairs each carpus is armed with three or four tubercles on its anterior border, and each propodus with one on the anterior border and two or three on the posterior. In the last two pairs the tubercles on the carpus and propodus are very prominent and lobate.

Originally described on a male collected by the Siboga Expedition at Sanguisiapo, 12 m deep.

***Pseudolambrus saishoi* TAKEDA, sp. nov.**

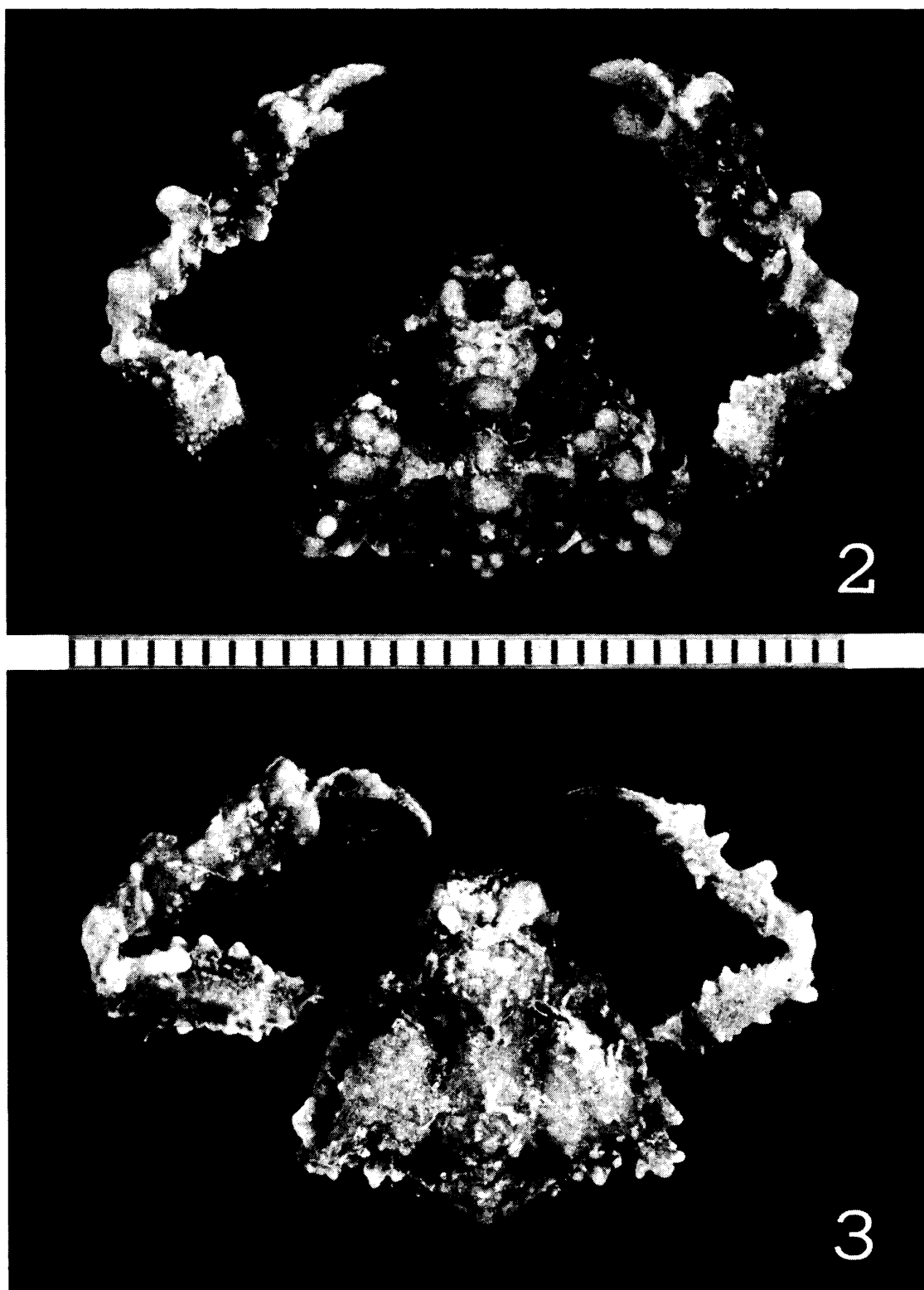
(Figs. 3, 6–10, 13, 14)

One female (holotype, NSMT–Cr. 5451), 26~28–X–1969, 20–40 m deep. Breadth of carapace, 15.0 mm and length of carapace in median line, 14.2 mm.

The Indo–West Pacific species of *Pseudolambrus* PAULSON which is sometimes ranked to the subgenus of *Parthenope* WEBER are 14 in number as enumerated below. *Ps. tarpeius* (ADAMS et WHITE, 1848) — Malay Arch. and Andaman Is., 33–42 m deep; *Ps. harpax* (ADAMS et WHITE, 1848) — From Malay Arch. to Australia, and to Amirante Is., 5–55 m deep; *Ps. calappoides* (ADAMS et WHITE, 1848) — From Japan to Red Sea, 35–390 m deep; *Ps. beaumontii* (ALCOCK, 1895) — Japan, Andaman Is. and Sri Lanka, 55–85 m deep; *Ps. confragosus* (CALMAN, 1900) — Torres Str.; *Ps. planus* (RATHBUN, 1911) — Amirante Is., 42–134 m deep; *Ps. parvus* (RATHBUN, 1916) — Sulu Arch., 18 m deep; *Ps. hepatoconus* (FLIPSE, 1930) — Sulu Arch., 13 m deep; *Ps. longispinosus* (FLIPSE, 1930) — Sanguisiapo and Mage-jima I., 12–40 m deep; *Ps. bidentatus* (FLIPSE, 1930), stat. nov. — Northwest of New Guinea, 32 m deep; *Ps. lobatus* (FLIPSE, 1930) — Paternoster I., 27 m deep; *Ps. bicornis* (FLIPSE, 1930) — Java Sea; *Ps. tuberculatus* (FLIPSE, 1930) — Sulu Arch. and Japan, 13–50 m deep; *Ps. ozakii* (SAKAI, 1969) — Kii Pen., Japan, shallow water.

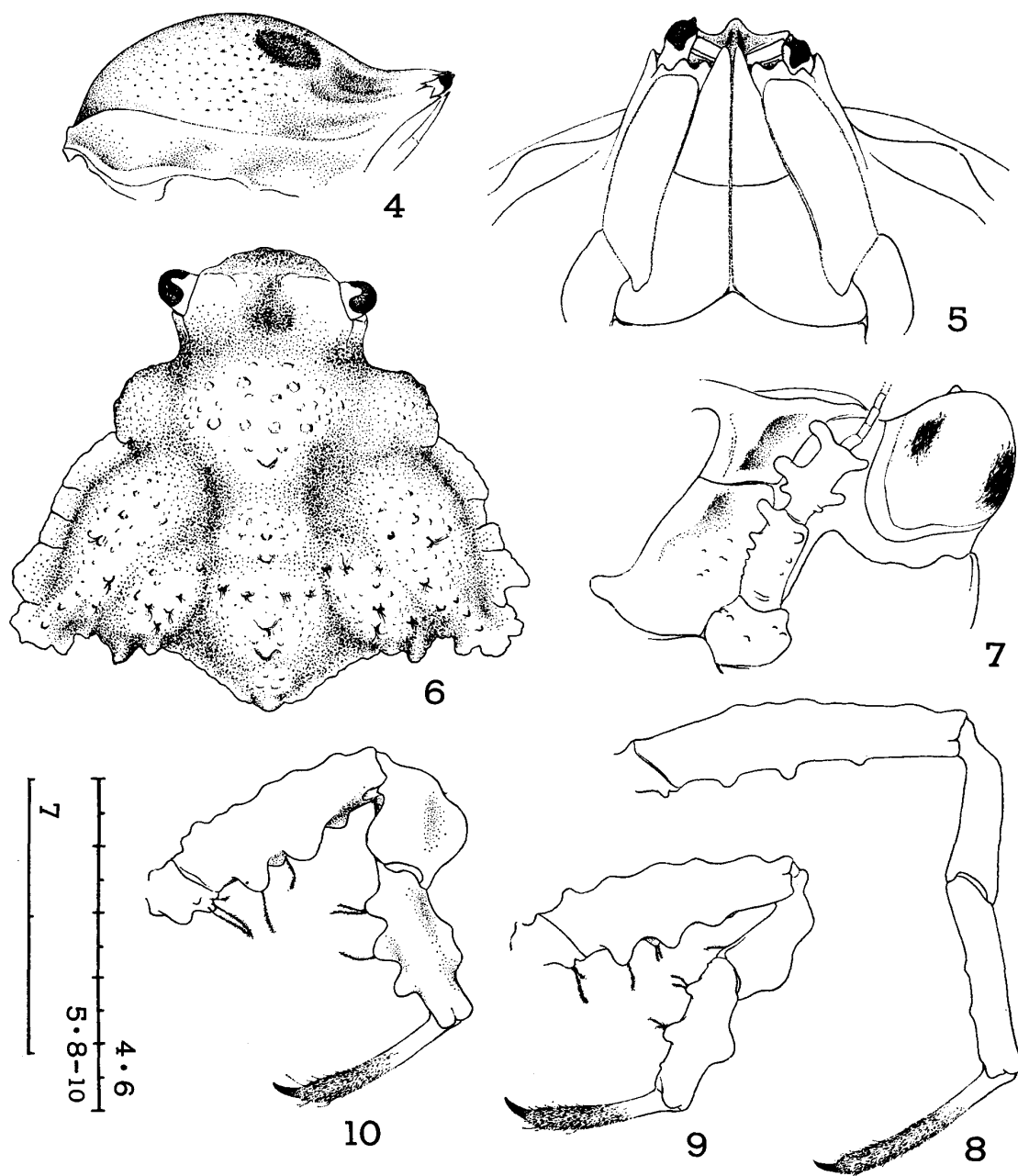
Examining a long series of specimens referable to *Ps. harpax* which is extremely variable, CAMPBELL and STEPHENSON (1970) doubted the validity of *Ps. bicornis* and *Ps. lobatus*.

The new species having the hepatic region deeply separated from the front is related to *Ps. beaumontii* and *Ps. bidentatus* in its general structure. In *Ps. beaumontii* the hepatic lobe is armed with a larger and two smaller teeth, the branchial border is



Figs. 2-3. — 2. *Pseudolambrus longispinosus* (FLIPSE), stat. nov., male. — 3. *Pseudolambrus saishoi* sp. nov., female (holotype).

closely festooned by a row of several sharp lacinated teeth, the bases of which are fused together, and the ambulatory legs are armed with three rows of close sharp spines on each merus and spinate or dentate on the carpi and propodi. In *Ps. bidentatus* which was originally ranked to a variety of *Ps. confragosus*, the carapace is depressed as a whole, there is a granulated ridge running from the posterolateral angle of the



Figs. 4-10. — 4-5. *Pseudophilyra dinops* sp. nov., holotype. — 4. Carapace in lateral view. — 5. Buccal and frontorbital regions in ventral view. — 6-10. *Pseudolambrus saishoi* sp. nov., holotype. — 6. Carapace in dorsal view. — 7. Orbital region in ventral view. — 8-10. Right second to fourth ambulatory legs. (Scales in mm)

carapace to the branchial tubercle which is absent in the new species, there are two teeth side by side at the median part of the posterior border of the carapace, and the hepatic lobe is armed with three teeth and the branchial border with six. The new species differs from the two species in the features mentioned above. The description of the holotype female is as follows.

Carapace triangular as a whole, with a strong lateral and dorsal postorbital constriction; regions distinctly demarcated and elevated, but not cariniform, being scantily covered with blunt conical or flattish granules; main granules rather symmetrically disposed and tipped with some short curled hairs. Gastric region high, and at its posterior median part there is a blunt conical granule which is directed obliquely backward, but not tuberculated at all. Cardiac region conical as a whole and deeply separated from gastric region by a wide depression and from inner branchial regions of both sides and intestinal region by shallow furrows, being tipped with a high tubercle which is also directed obliquely backward; a conical granule at its posterior slope in median line. Intestinal region with some granules small, not convex, but distinct. Branchial region convex along anterolateral border of carapace, and more or less cariniform near its posterolateral angle; inner branchial region demarcated between cardiac and true branchial regions, but not convex; a deep longitudinal cavity in front of inner branchial region and just outside of depression between gastric and cardiac regions. A similar deep cavity between orbits of both sides.

Front strongly deflexed, its free edge trilobate, but the laterals almost indistinguishable. Hepatic region separated from orbit by a deep bight, and weakly convex dorsally, its margin being generally convex, irregular and narrowly thin-edged; its posterior end overlapping anterolateral margin of carapace, but interruption between hepatic and anterolateral margins very distinct. Anterolateral margin thin-edged and composed of four overlapped lobes, free edges of which are truncated and irregular; middle two lobes smaller. Posterolateral angle stout and slightly upcurved, being armed with two outer and one inner depressed tubercles. Posterolateral border of carapace concave and occupied by three teeth, median one of which is very prominent. True posterior margin of carapace protruded posteriorly much beyond posterolateral angle; its summit obtuse, but distinguished from lateral margins.

Peduncle of antennule with a spinule near its median part of exposed surface. Antennal segments characteristically tuberculated as figured. Third maxilliped studded with tubercles; some on ischium along outer border, one near posterolateral corner of merus and two on outer border of exopod larger than the others.

Chelipeds quite unequal in holotype female, the left being the larger. Merus triangular in cross section, with thin edges; anterior upper edge with three large teeth and some smaller ones, and posterior edge irregularly and sharply dentate; in smaller merus terminal tooth on posterior border high and rounded at its apex to be lobate. In smaller carpus a conical tubercle at inner part of outer surface, while in larger carpus a low mound at this place. In smaller palm a thin lobe at proximal part of upper border, a similar but sharper one at distal two-thirds of upper border, a spiniform

tubercle at middle of inner part of upper border, a similar tubercle on inner surface obliquely in front of a tubercle just mentioned, two conical tubercles on distal part of outer surface; lower border sharp, serrated with six conical lacinated teeth; in larger palm tubercles seen in smaller one indicated by low tubercles or granulated prominences; a lobe at proximal part of upper border strongly curved outward.

All of ambulatory legs detached in holotype female. First two pairs slender and similar to each other; anterior border of merus sharp, with four or five indistinct teeth, and posterior upper and lower borders also each with three small conical teeth; in second pair propodus a small tubercle on anterior border and three on posterior border. Third pair stouter, but shorter than preceding pairs; three high teeth or lobes on posterior upper border of merus; anterior border of carpus with a thin lobe; in propodus a similar lobe also at middle of anterior border and three tubercles on posterior border. In last pair two large lobes on posterior upper border of merus, a large thin lobe each on anterior and posterior borders of carpus, a thin lobe at middle of anterior border of propodus and three high lobes on posterior border of propodus. In all pairs dactyli with tomenta on distal two-thirds, not tapering.

Family Cancridae

Cancer amphioetus RATHBUN, 1898

One female (NSMT-Cr. 5421), 26-X-1969, 20-40 m deep.

This species is common in the Japanese waters, showing a considerable variation in the convexity of the dorsal bulbous areolation. According to NATIONS (1975), fossil remains are known from the Lower Pleistocene.

Known from Japan, Korea and North China in the West Pacific, and the coast of California and the Gulf of California in the Pacific coast of America. From rocky shore to 300 m.

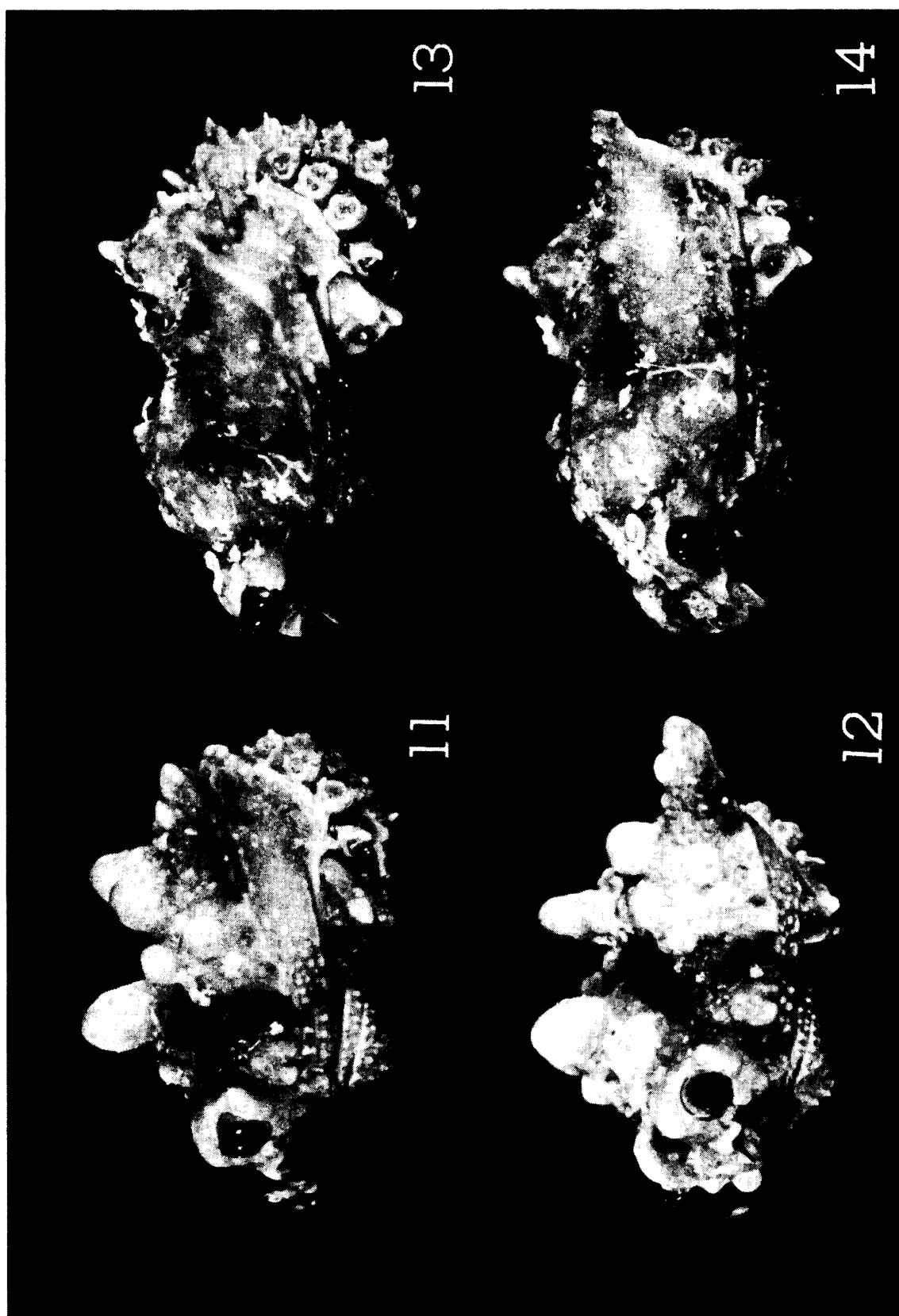
Family Portunidae

Thalamita wakensis EDMONDSON, 1925

One juvenile (NSMT-Cr. 5454), 30-VI-1967, 35-40 m deep; one male and one female (NSMT-Cr. 5455), 4-X-1969, 35 m deep; one male, two ovigerous females, six females and one juvenile (NSMT-Cr. 5456), 26~28-X-1969, 20-40 m deep.

These specimens agree well with the figures given by the original author (1925, 1954) and SAKAI (1939). This small species is characterized above all by the overlapping of the submedian frontal lobe to the median lobe. MINEI (1971) recorded an ovigerous female from Amami-Oshima Island and represented a male from Kagoshima Prefecture, but the photograph is not clear for subsequent identification.

Recorded only from Wake Island and the Japanese waters. Known as a shallow water inhabitant.



Figs. 11-14. — 11-12. *Pseudolambrus longispinosus* (FLIPSE), stat. nov., male. — 13-14. *Pseudolambrus saishoi* sp. nov., holotype.

Family Xanthidae

Liomera boninensis (ODHNER, 1925)

One juvenile (NSMT-Cr. 5435), 3-X-1968, 40 m deep.
Endemic to the Japanese waters. From 30 to 300 m.

Liomera caelata (ODHNER, 1925)

One male (NSMT-Cr. 5436), 30-VI-1967, 35-40 m deep; one female (NSMT-Cr. 5437), 26~28-X-1969, 20-40 m deep.

This species was hitherto recorded by the original author (1925), TAKEDA and KOYAMA (1974) and SAKAI (1976), being characterized by the U-shaped protogastric region.

Chiefly West Pacific from the coast of the Kii Peninsula and the Ogasawara Islands to the Torres Straits, and otherwise from the Cocos Keeling Islands and Aldabra Island in the Indian Ocean. From coral reef to 75 m.

Macromedaeus orientalis (TAKEDA et MIYAKE, 1969)

One female (NSMT-Cr. 5441), 30-VI-1967, 35-40 m deep.

This species originally referred to *Microcassiope* GUINOT was recently transferred to *Macromedaeus* WARD by YAMAGUCHI *et al.* (1976) due to the close resemblance to *M. distinguendus* (DE HAAN). At first sight this species is definitely distinguished from it by its small size. The carapace is much rougher with granulated striae and the widely double-rimmed front is deeply separated into two lobes by a median wide sinus. In the male the prolongation of dark color onto the palm is much greater.

This species was originally described from off Fukuoka Prefecture, 10 m deep, and subsequently recorded from the Indonesian waters, but neglected by SAKAI (1976). The present author examined the specimens from Manazuru in Sagami Bay, Toyama Bay, the east coast of the Kii Peninsula and Amakusa. It is highly probably that this species is confused with *M. distinguendus* and more widely distributed in the Indo-West Pacific. Its bathymetric range is from low tidal zone to the present record of 40 m.

Nanocassiope granulipes (SAKAI, 1939)

One male (NSMT-Cr. 5442), 30-VI-1967, 35-40 m deep; one male (NSMT-Cr. 5443), 26~28-X-1969, 20-40 m deep.

This species is not uncommon in the Japanese waters, having the characteristic male first pleopod as figured by SERÈNE (1964).

Known from Japan and off Durban, South Africa. From 30 to 120 m.

***Ralumia simodaensis* (SAKAI, 1939), comb. nov.**

Two males (NSMT-Cr. 5453), 3-X-1968, 40 m deep.

These specimens are small in size, but probably identified with this rare species. The separation of two genera, *Calmania* LAURIE and *Ralumia* BALSS, is difficult, as discussed by SERÈNE and UMALI (1972). TAKEDA (1973) considered that *Calmania* is monotypically represented by *C. prima* LAURIE in which the front is not at all deflexed. The present paper followed this opinion.

Hitherto recorded from Shimoda in the east coast of the Izu Peninsula and Sisiman Bay, Luzon. From rocky shore to the present record of 40 m.

***Paractaea rueppellii* (KRAUSS, 1843)**

One female (NSMT-Cr. 5415), 3-X-1968, 40 m deep; one female (NSMT-Cr. 5414), 14-IV-1970, 40 m deep.

From Japan to Australia, and to South Africa. From 15 to 120 m.

***Etisus* aff. *demani* ODHNER, 1925**

Two juveniles (NSMT-Cr. 5428), 26~28-X-1969, 20-40 m deep. In the larger specimen the carapace is 6.8 mm in its breadth, and the other is only slightly smaller.

In spite of its small size in both the specimens, the movable finger is abruptly curved. These specimens are allied to *E. electra* (HERBST), but the carapace is wider and the front is composed of two subtruncated lobes without prominent lateral angles. The dorsal regions of the carapace are not convex probably due to the immaturity of the specimens. They are very close to *E. demani* ODHNER, which was recorded by TAKEDA (1972) from the Ryukyu Islands but was overlooked by SAKAI (1976).

Etisus demani ranges from the Ryukyu Islands to New Caledonia, and to Mauritius and the Red Sea. Usually found at coral reef.

***Chlorodiella laevissima* (DANA, 1852)**

One male (NSMT-Cr. 5424), 30-VI-1967, 35-40 m deep; four males, one ovigerous female and three females (NSMT-Cr. 5426), 3-X-1968, 40 m deep; one ovigerous female (NSMT-Cr. 5425), 26~28-X-1969, 20-40 m deep.

Throughout the Indo-West Pacific. From coral reef to the present record of 40 m.

***Pilumnus longicornis* HILGENDORF, 1878**

Nine juveniles (NSMT-Cr. 5446), 1-X-1968, 40 m deep; one male (NSMT-Cr. 5447), 26-X-1969, 20-40 m deep.

Indo-West Pacific except for southern Polynesia and the Red Sea. From 5 to 100 m.

Pilumnus minutus (DE HAAN, 1835)

Two males and one ovigerous female (NSMT-Cr. 5448), 30-VI-1967, 35-40 m deep; three males (NSMT-Cr. 5449), 26~28-X-1969, 20-40 m deep.

Indo-West Pacific except for the central Pacific. From lower littoral zone to 275 m.

Actumnus setifer (DE HAAN, 1835)

One female (NSMT-Cr. 5415), 4-VII-1969, 35-40 m deep; three males (NSMT-Cr. 5418), 25~28-X-1969, 20-40 m deep; one female (NSMT-Cr. 5417), 14-IV-1970, 40 m deep.

Indo-West Pacific except for the central Pacific. From littoral zone to 200 m.

Parapilumnus coralliophilus TAKEDA et MIYAKE, 1969

One female (NSMT-Cr. 5444), 3-X-1968, 40 m deep.

This specimen is 3.2 mm in the carapace breadth including the lateral teeth, agreeing generally with the original description. In this specimen, however, the hepatic convexity is nearly indistinct, and the ambulatory carpi and propodi are armed with tubercles instead of humps.

This species was originally described from the west coast of the Kii Peninsula and the Palau Islands, but not included in the Japanese fauna by SAKAI (1976). Described from the specimens collected at coral reef.

Heteropilumnus longipes (STIMPSON, 1858)

One ovigerous female (NSMT-Cr. 5452), 30-VI-1967, 35-40 m deep. Breadth of carapace, 10.0 mm and length of carapace, 6.6 mm.

It is very difficult to identify the *Pilumnus* and *Heteropilumnus* species mainly due to the variability of hairiness and partly to the diagrammatic figures so far published. The specimen at hand is a rather typical *Heteropilumnus* in which the dorsal surface of the carapace is flattened laterally with a short tomentum on its whole surface and with sparse long silky hairs near the frontal and anterolateral borders, and the anterolateral border is separated into four lobes by three small notches. The long hairs on the carapace, chelipeds and ambulatory legs are soft, but not so much as in the species of *Viaderiana*. The Japanese *Heteropilumnus* is represented by three species, viz., *H. ciliatus* (STIMPSON, 1858), *H. longipes* (STIMPSON, 1858) and *H. mikawaensis* SAKAI, 1969. *Litocheira integra* (MIERS) which was referred to *Heteropilumnus* by SAKAI (1976) is a monotypical representative of *Pseudolitochira* WARD.

Endemic to Japan from the Kii Peninsula to the Ryukyu Islands. From coral reef to 154 m.



Fig. 15. *Heteropilumnus longipes* (STIMPSON), ovigerous female.

Literature

- ADAMS, A., & A. WHITE, 1848. Crustacea. In: *The Zoology of the Voyage of H.M.S. Samarang 1843-1846*. viii+66 pp., 13 pls. London.
- ALCOCK, A., 1895, 1896. Materials for a carcinological fauna of India. No. 1. The Brachyura Oxyrhyncha. No. 2. The Brachyura Oxystomata. *J. Asiat. Soc. Bengal*, **64**: 157-291, pls. 3-5, **65**: 134-296, pls. 6-8.
- BALSS, H., 1933. Ueber einige systematisch interessant indopacifische Dekapoden. *Mitt. Zool. Mus. Berlin*, **19**: 84-97, pl. 2.
- BORRADAILE, L. A., 1900. On some crustaceans from the South Pacific. Part IV. The crabs. *Proc. zool. Soc. Lond.*, **1900**: 568-596, pls. 40-42.
- CALMAN, W. T., 1900. On a collection of Brachyura from Torres Straits. *Trans. Linn. Soc. Lond.*, (Zool.), **8**: 1-49, pls. 1-3.
- CAMPBELL, B. M., & W. STEPHENSON, 1970. The sublittoral Brachyura (Crustacea: Decapoda) of Moreton Bay. *Mem. Qld. Mus.*, **15**: 235-301, pl. 22.
- DANA, J. D., 1852. Crustacea. *United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842, under the command of Charles WILKES, U.S.N.*, **13**: 1-1393.
- EDMONDSON, C. H., 1925. Crustacea. Marine zoology of tropical central Pacific. *Bull. Bernice P. Bishop Mus.*, **27**: 3-62, pls. 1-4.
- 1954. Hawaiian Portunidae. *Occ. Pap. Bernice P. Bishop Mus.*, **21**: 217-274.
- FLIPSE, H. H., 1930. Die Parthenopidae der Siboga-Expedition. *Siboga-Exp.*, **39c**: 1-96.
- GUINOT, D., 1967. Recherches préliminaires sur les groupements naturels chez les crustacés décapodes brachyours. II. Les anciens genres *Micropanope* STIMPSON et *Medaeus* DANA. *Bull. Mus. Hist. nat., Paris*, (2), **39**: 345-374.

- HAAN, W. DE, 1833-1849. Crustacea. Fauna Japonica sive descriptio animalium, quae in itinere per Japoniam, jussu et auspiciis superiorum, qui summum in India Batava Imperium tenent, suscepto, annis 1823-1830 collegit, notis observationibus et abumbrationibus illustravit. xvii + xxxi + 244 pp., pls. 55 + A-Q + 2.
- HENDERSON, J. R., 1893. A contribution to Indian carcinology. *Trans. Linn. Soc. Lond.*, (Zool.), 5: 325-458, pls. 36-40.
- HILGENDORF, F., 1878. Die von Herrn PETERS in Moçambique gesammelten Crustaceen. *Monatsber. Akad. Wiss. Berlin, Sitzb. phys.-math. Kl.*, 1878: 782-851, pls. 1-4.
- IHLE, J. E., 1913, 1918. Die Decapoda Brachyura der Siboga-Expedition. I. Dromiacea. III. Oxystomata: Calappidae, Leucosiidae, Raninidae. *Siboga-Exp.*, 39b: 1-96, pls. 1-4, 159-322.
- LAURIE, R. D., 1906. Report on the Brachyura collected by Prof. HERDMANN at Ceylon in 1902. *Pearl Oysters Fish. Rept.*, 5, Suppl. Rept., 40: 349-432, pls. 1-2.
- MAN, J. G. DE, 1887-1888. Report on the podophthalmous Crustacea of the Mergui Archipelago, collected for the trustees of the Indian Museum, Calcutta, by Dr. John ANDERSON, F. R. S., Superintendent of the Museum. *J. Linn. Soc. Lond.*, (Zool.), 22: 1-312, pls. 1-19.
- MIERS, E. J., 1877. Notes upon the oxystomatous Crustacea. *Trans. Linn. Soc. Lond.*, (Zool.), 1: 235-249, pls. 38-40.
- 1879. On a collection of Crustacea made by Capt. H. C. St. JOHN, R. N., in the Korean and Japanese Seas. *Proc. zool. Soc. Lond.*, 1879: 18-61, pls. 1-3.
- 1884. Crustacea. In: *Report on the zoological collections made in the Indo-Pacific Ocean during the voyage of H.M.S. "Alert" 1881-2*, pp. 178-322, 513-575, pls. 17-34, 46-52.
- MINEI, H., 1971. Studies on the portunids (Decapoda, Portunidae) of the Ryukyu Islands. *Biol. Mag., Okinawa*, 8: 63-71. (In Japanese.)
- NATIONS, J. D., 1975. The genus *Cancer* (Crustacea: Brachyura): Systematics, biogeography and fossil record. *Sci. Bull. Nat. Hist. Mus. Los Angeles Co.*, 23: 1-104, 1 frontispiece.
- ODAWARA, T., 1963. Occurrence of *Lasiodromia coppingeri unidentata* IHLE in Japan. *Res. Crust.*, 1: 18-19. (In Japanese with English summary.)
- ODHNER, T., 1925. Monographierte Gattung der Krabbenfamilie Xanthidae. I. *Göteborgs Vet.-och Vit.-Samh. Handl.*, (4), 29: 1-92, pls. 1-5.
- PAULSON, O., 1961 (1875). *Studies on Crustacea of the Red Sea with notes regarding other seas. Part 1. Podophthalmata and Edriophthalmata (Cumacea)*. The Israel Program for Scientific Translations, Jerusalem. 164 pp., 21 pls. "English translation of the original Russian publication for 1875."
- RATHBUN, M. J., 1898. The Brachyura collected by the U. S. Fish Commission steamer Albatross on the voyage from Norfolk, Virginia, to San Francisco, California, 1887-1888. *Proc. U. S. Natn. Mus.*, 21: 567-616, pls. 41-44.
- 1907. Reports on the scientific results of the expedition to the tropical Pacific, in charge of Alexander AGASSIZ, by the U. S. Fish Commission steamer "Albatross." IX, X. The Brachyura. *Mem. Mus. Comp. Zool.*, 35: 23-74, pls. 1-9.
- 1911. The Percy Sladen Trust Expedition to the Indian Ocean in 1905. 3 (11). Marine Brachyura. *Trans. Linn. Soc. Lond.*, (Zool.), 14: 191-261, pls. 15-20.
- 1916. New species of crabs of the families Inachidae and Parthenopidae (Scientific results of the Philippine cruise of the Fisheries steamer "Albatross," 1907-1910. No. 34). *Proc. U. S. Natn. Mus.*, 50: 527-559.
- 1924. Brachyura, Albuneidae and Porcellanidae. Results from Dr. E. Mjöberg's Swedish Scientific Expedition to Australia 1910-1913. *Ark. Zool.*, 16: 1-33, pl. 1.
- SAKAI, T., 1936, 1938, 1939. Studies on the crabs of Japan. I. Dromiacea. III. Brachygnatha, Oxrhyncha. IV. Brachygnatha, Brachyrhyncha. *Sci. Rept. Tokyo Bunrika Daigaku*, (B), 3, Suppl., 1: 1-66, pls. 1-9. Tokyo, Yokendo Co., Ltd., pp. 193-364, 365-741, pls. 20-41, 42-111.
- 1969. Two new genera and twenty-two new species of crabs of Japan. *Proc. biol. Soc. Wash.*, 82: 243-280.

- SAKAI, T., 1976. Crabs of Japan and the Adjacent Seas. xxix+773+461 pp., 251 pls. Tokyo, Kodansha Co., Ltd.
- SERÈNE, R., 1964. Goneplacidae et Pinnotheridae récoltes par le Dr. MORTENSEN. Papers from Dr. Th. MORTENSEN's Pacific Expedition 1914-1916. 80. *Vid. Medd. fra Dansk nat. Foren.*, **126**: 181-282, pls. 16-24.
- & A. F. UMALI, 1972. The family Raninidae and other new and rare species of brachyuran decapods from the Philippines and adjacent regions. *Philip. J. Sci.*, **99**: 21-105, pls. 1-9.
- STIMPSON, W., 1858. Prodrômus descriptionis animalium evertibratorum, quae in Expeditione ad Oceanum Pacificum septentrionalem, a republice federata missa, Cadwaladaro RINGGOLD et Johanne RODGERS ducibus, observavit et descripsit. Pars V. Crustacea Ocypodoides. *Proc. Acad. nat. Sci. Phila.*, **10**: 39-56 (93-110).
- SUZUKI, K., & Y. KURATA, 1967. On the carcinological fauna of the Izu-Ohshima and its adjacent island. *Res. Crust.*, **3**: 86-104. (In Japanese with English summary.)
- TAKEDA, M., 1972. Further notes on the unrecorded xanthid crabs from the Ryukyu Islands. *Biol. Mag., Okinawa*, **9**: 15-24, pl. 1.
- 1973. Studies on the Crustacea Brachyura of the Palau Islands. I. Dormiidae, Dynomenidae, Calappidae, Leucosiidae, Hymenosomatidae, Majidae and Parthenopidae. *Bull. Lib. Arts & Sci. Course, Nihon Univ. Sch. Med.*, **1**: 75-122, pls. 2-3.
- 1976. Littoral and inshore decapod crustaceans of Tanega-shima Island, Southwest Japan. *Mem. Natn. Sci. Mus., Tokyo*, (9): 151-161. (In Japanese with English summary.)
- & Y. KOYAMA, 1974. On some rare crabs from Kii Province. *Res. Crust.*, **8**: 203-121. (In Japanese and English.)
- & Y. KURATA, 1976. Crabs of the Ogasawara Islands, III. Some species collected by coral fishing boats. *Bull. Natn. Sci. Mus., Tokyo*, (A), **2**: 19-32, pls. 1-2.
- & S. MIYAKE, 1969 a. Pilumnid crabs of the family Xanthidae from the West Pacific. II. Twenty-one species of four genera, with descriptions of four new species. *Ohmu*, **2**: 93-156.
- & ——— 1969 b. On two species of the family Xanthidae (Crustacea, Brachyura) from southern Japan. *Ibid.*, **2**: 195-206.
- WARD, M., 1942. Notes on the Crustacea of the Desjardins Museum, Mauritius Institute, with descriptions of new genera and species. *Mauritius Inst. Bull.*, **2**: 49-113, pls. 5-6.
- YAMAGUCHI, T., M. TAKEDA & K. TOKUDOME, 1976. A list of crabs collected in the vicinity of the Aitsu Marine Biological Station and a preliminary report on the cheliped asymmetry of the crabs. *Calanus*, **5**: 31-46. (In Japanese.)
- YOKOYA, Y., 1933. On the distribution of decapod crustaceans inhabiting the continental shelf around Japan, chiefly based on the materials collected by S. S. Sôyô-Marû, during the year 1923-1930. *J. Coll. Agr., Tokyo Imp. Univ.*, **12**: 1-226.